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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
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ECONOMIC STATUS OF THE
CALIFORNIA DUNGENESS CRAB FISHERY
IN 1982-83

I. HIGHLIGHTS

Dungeness crab (Cancer Magister) landings in Washington, Oregon, California, and Alaska during the 1982-83 season were an estimated 25.9 million pounds, down 34 percent from the 39.3 million pounds landed in 1981-82 (Table 1). In California, Dungeness crab landings in 1982-83 were only 5.3 million pounds, down almost 50 percent below 1981-82 and 54 percent below the five-year average of 11.6 million pounds. Crab landings in the San Francisco area, which were the lowest on record in 1981-82 (200,000 pounds), recovered to over 570,000 pounds or well within the five year average. Landings in the Eureka/Crescent City area in 1982-83 fell by more than five million pounds for the 1981-82 season.

II. DESCRIPTION OF FISHERY

The Dungeness crab resource off California is harvested from five discrete fishing areas: (1) Avila-Morro Bay, (2) Monterey, (3) San Francisco-Bodega Bay, (4) Fort Bragg, and (5) Eureka into Oregon. The areas from San Francisco northward yield the highest commercial harvests, with the largest stock unit extending from Eureka into Oregon. Although Dungeness crab off California is found in distinctly separate areas, the CDFG has not shown the stock units to be reproductively discrete (PFMC, 1979). For management purposes, however, the California Department of Fish and Game (CDFG) considers each area to have a separate stock unit (PFMC, 1979).

The California Dungeness crab population historically has fluctuated between very high and low levels of abundance. The present crab cycle of below average stock size and landings in northern California is expected to continue for the next few seasons. Landings in the San Francisco area are recovering from the extremely depressed levels in the 1981-82 season. The natural fluctuations in cyclical abundance are exacerbated by extremely high levels of fishing effort in the coastwide fishery.

Dungeness crab are landed primarily for commercial sale. A small recreational fishery for Dungeness crab occurs along the northern coast, especially in the Crescent City area (CDFG, 1983). The commercial fleet consists largely of multi-purpose combination vessels capable of switching among numerous fisheries such as crab, shrimp, albacore, and groundfish. Commercial crab gear consists of circular steel or iron frame pots 3 to 3.5 feet in diameter.

The CDFG establishes regulations for gear, seasons, areas, and sex of the catch to manage the Dungeness crab fishery (PFMC, 1979). State regulations require at least two circular escape ports of 4 1/4 inches. North of Pt. Conception, at least one half of these escape ports must be located in the upper half of pots. The fishing season is December 1 to July 31 in the Eureka/Ft. Bragg areas and from the second Tuesday in November to June 30 in all other areas, including San Francisco. Areas closed to commercial fishing are the Eel River, Trinidad Bay, Bodega Lagoon, Crescent City Harbor, Humboldt Bay, and the Pacific Ocean within a one mile radius of the mouth of the Eel River and Humboldt Bay. Retention of female crabs is prohibited to protect breeding stocks.

II. COMMERCIAL HARVEST SECTOR

In 1982-83, 557 vessels landed Dungeness crab in California, up from approximately 532 in 1981-82. This five percent expansion in fleet size was due to the larger number of shrimp and groundfish vessels switching to crab. The season began with several boats from Oregon fishing off Crescent City. However, fishermen who anticipated a repeat of the catches of the 1981-82 season found the northern California fishery extremely slow and they quickly departed for Oregon and Washington waters. Northern California landings fell from 10.3 million pounds during 1981-82 to only 4.75 million pounds last season.

The total exvessel value of California crab landings in 1982-83 was approximately \$5,714,000, with an average price of \$1.08 per pound (Table 2). This is a 42 percent decrease from the 1981-82 estimated ex-vessel value of \$9,870,000. After adjusting for inflation, the total value of 1982-83 landings fell about 45 percent. A substantial increase in the average exvessel price from \$0.94 per pound in 1981-82 to \$1.08 per pound in 1982-83 did little to offset the major reduction in poundage landed.

The average gross revenue per vessel from California crab landings was \$10,300 in 1982-83 compared to \$18,550 in 1981-82, a decrease of 44 percent. After adjusting for inflation, the real value per vessel declined 47 percent. Although averages do not necessarily reveal what has been happening in the fishery, the crab fleet on the whole appeared to fare poorly during the 1982-83 season. The large number of Oregon and Washington boats that fished off northern California to land crab in California dominated the catch during the 1981-82 season. These vessels reappeared off California in 1982-83 but soon returned to their ports of origin as low catch rates adversely impacted these large vessel operations. To compensate for the depressed catch rates,

over 100 vessels fished for poor quality crab off Oregon during the 1983 late summer fishery. This suggests that the fleet had an especially unproductive early season. Normally about 20 boats participate in the summer fishery off Oregon.

According to the historical crab cycle, California landings should remain low for three more seasons (Pacific Fishing, 1984). The appearance of large numbers of sublegal males occurring in the 1982-83 seasonal catch suggested that landings could rebound sooner. However, landings in the first month (December) of the 1983-84 season in the Crescent City fishery were only 2.2 million pounds compared to 3.5 million pounds in December 1982.

III. CALIFORNIA PROCESSING SECTOR

California processors produced a higher proportion of whole live and cooked crab rather than crab meat due to the reduced harvest of Dungeness crab during the 1982-83 season. The fresh crab product is normally bought immediately by specialty fresh-fish stores, whereas whole-cooked crab is sold primarily to restaurants and retail stores. Whole crab product yields a higher profit margin for processors. The shift in production to a higher margin product combined with somewhat higher wholesale prices probably was insufficient to boost crab earnings because of the limited supplies during the 1982-83 season.

IV. MARKET CONDITIONS FOR DUNGENESS CRAB

Whole Dungeness crab accounts for the majority of crab landed on the west coast. It is a unique product with no close substitutes in the west coast market. When sold as crab meat, however, it competes directly with king crab and tanner crab meat, which is generally available nationwide.

Harvests of Alaskan king and tanner crab remained well below the 1980 record harvest of 307 million pounds. Combined landings in 1983 were approximately 110 million pounds following the 108 million pounds harvested in 1982, the lowest level since 1972. This decline coupled with lower supplies of Dungeness crab has led to higher wholesale prices for all crab products. During the early 1982-83 season, wholesale prices for whole-live and whole-cooked Dungeness crab were \$1.65 per pound and \$1.80 per pound respectively. In the middle of January 1983, prices had risen to \$1.80 per pound for whole-live and \$2.05 per pound for whole-cooked crab. For the remainder of the season prices ranged from \$1.80-1.95 per pound for whole-live and \$2.05-2.35 per pound for whole-cooked.

Pacific Fishing (1984) indicates that the demand for Dungeness crab may be exceptionally sensitive to this upward trend in wholesale prices. By December 1983, the wholesale price for whole-cooked crab in California had risen to more than \$2.40 per pound FOB plant. One processor reported that the larger retail chain-stores have discontinued purchases of Dungeness crab at this high price (Pacific Fishing, 1984). However, specialty fish stores in Los Angeles and along San Francisco's Fishermans Wharf still were willing to pay prices higher than \$2.00 per pound for Dungeness crab.

Table 1 - West Coast Dungeness Crab Landings (thousand pounds) from 1977-78 to 1982-83.

<u>Year</u>	<u>California</u>	<u>Oregon</u>	<u>Washington</u>	<u>Alaska</u>	<u>Total</u>
1977-78	13,800	10,400	9,100	7,200	40,500
1978-79	8,300	16,400	10,700	6,400	41,800
1979-80	13,700	18,200	8,300	5,900	46,100
1980-81	11,800	9,500	4,400	15,600	41,300
1981-82	10,500	8,700	3,900	16,200	39,300
1977-78 to 1981-82 - five year average	11,620	12,640	7,280	10,260	41,800
1982-83	5,300	4,100	5,000	11,500	25,900

Source: Pacific Marine Fisheries Commission, Annual Report for 1978-1983.

Table 2 - Ex-vessel Value and Average Weighted Price of Dungeness Crab Landings in California from the 1980-81 Season to 1982-83 Season.

<u>Year</u>	<u>Landings</u>	<u>Nominal Ex-vessel Value</u>	<u>Real^{1/} Ex-vessel Value</u>	<u>Average Price/per Pound</u>
1980-81	11,800,000	8,643,000	N/A	0.73
1981-82	10,525,700	9,870,000	4,935,000	0.94
1982-83	5,326,900	5,714,000	2,730,000	1.08

Source: Preliminary Statistics for 81-82 and 82-83 seasons from Phil Swartzell, California Department of Fish and Game, Menlo Park.

^{1/} Adjusted for inflation using the GNP implicit price deflator (1972=100).

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